Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 2 and 90 of the	)	RM-9096;
Commission's Rules to Allocate the	)	ET Docket No. 98-95
5.850-5.925 GHz Band to the	)	
Mobile Service for Dedicated Short	)	
Range Communications of Intelligent	)	
Transportation Services	)	

REPLY COMMENTS OF ITS AMERICA

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October 13, 1998

TABLE OF CONTENTS

SUMMARY

The Intelligent Transportation Society of America ("ITS America"), by its counsel and pursuant to Section 1.415 of the Commission's Rules, hereby submits its reply to comments submitted in the Notice of Proposed Rule Making, FCC 98-119 (June 11, 1998) ("NPRM"), in the above-captioned proceeding.

Like the majority of parties that submitted comments, ITS America also supports the NPRM. The record shows broad support for the Commission's proposal to allocate 75 MHz of spectrum in the 5.850 to 5.925 GHz band on a co-primary basis for Dedicated Short Range Communications ("DSRC")-based intelligent transportation services ("ITS"). All parties recognize the public benefits that would accrue from the anticipated DSRC operations and, therefore, generally support an allocation of spectrum for use of DSRC-based ITS services. Furthermore, the majority of the comments specifically support the Commission's proposal to allocate 75 MHz of spectrum in the 5.850-5.925 GHz band for DSRC-based ITS services.

Like most commenters, ITS America agrees that DSRC-based systems are compatible with existing uses of the spectrum and can operate in the 5.850 to 5.925 GHz band with minimal interference. ReSound Corporation and Motorola, however, oppose use of the 5.850-5.925 GHz band for use by DSRC services, claiming potential interference with hearing devices they are currently developing. ITS America believes that the provision of hearing assistance devices to those with disabilities is a valuable service in the public interest; however, they are unlicensed devices and, therefore, are not entitled to protection by the Commission's Rules. Further, while Resound and Motorola have not yet manufactured this band, neither address the fact that interference may already exist to their proposed unlicensed device from

existing incumbent users of the band. Nor do they address the potential that future uses of the band may disrupt the operations of their unlicensed device after it is commercially deployed.

The Amateur Radio Relay League and amateur radio operators also oppose the proposed band, claiming interference with the Amateur Radio Service. The Amateur Radio Service, as a secondary service in the band, however, is not entitled to any interference protection from DSRC systems. The Commission has stated that amateur operations would not be permitted to cause harmful interference to primary licensed operations in this frequency range. Furthermore, as the Commission has already found, secondary amateur radio allocation which overlaps the proposed band is lightly used. Indeed, ARRL's website appears to indicate that there is no planned use of the 5.850-5.925 GHz band by amateur operators.

For reasons set forth in its Petition, comments in reponse to the NPRM, and the reply comment herein, ITS America urges the Commission to expeditiously finalize the proposed spectrum allocation.

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REPLY COMMENTS OF ITS AMERICA

The Intelligent Transportation Society of America ("ITS America"), by its counsel and pursuant to Section 1.415 of the Commission's Rules,[1] hereby respectfully submits its reply to comments submitted in the above-captioned proceeding. By its Notice of Proposed Rule Making ("NPRM"), the Commission invited comments on its proposal to allocate 75 MHz of spectrum between 5.850 and 5.925 GHz for use by Dedicated Short Range Communications ("DSRC") on Intelligent Transportation Systems ("ITS").[2] To this end, the Commission has proposed to adopt a new Section 90.371, which will establish the Dedicated Short Range Communications Service ("DSRCS") in Subpart M (the Intelligent Transportation Systems Radio Service, or "ITS-RS") of Part 90 of the Commission's Rules. In adopting the NPRM, the Commission observed that ITS services are expected to improve traveler safety, decrease traffic

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1 47 C.F.R. § 1.415.

2 *Amendment of Parts 2 and 90 of the Commission's Rules to Allocate the 5.850-5.925 GHz Band to the Mobile Service for Dedicated Short Range Communications of Intelligent Transportation Services*, RM-9096; ET Docket No. 98-95, Notice of Proposed Rule Making, FCC 98-119 (June 11, 1998) ("*NPRM*"); 63 Fed. Reg. 35558 (June 30, 1998).

congestion, and facilitate reduction of air pollution and conservation of fossil fuels.[3] The Commission also noted that the NPRM furthers the goals of the U.S. Congress, the Department of Transportation, and the ITS industry to improve the efficiency of the Nation's transportation infrastructure and to facilitate the growth of the ITS industry.[4]

On September 14, 1998, ITS America submitted its comments in support of the NPRM.[5] ITS America emphasized the need for the spectrum allocation to DSRC-based ITS services to attain the national priority established by Congress in the Intermodal Surface Transportation Efficiency Act of 1991 ("ISTEA").[6] Congress, in passing the Transportation Equity Act for the 21st Century,[7] reaffirmed the national priority of a timely deployment of ITS services and called for a robust deployment of those services over the next six years. Indeed, as ITS America established in its comments, international efforts at standardization and deployment of DSRC products in the 5.8 GHz band continue to move forward, making the expeditious completion of this rulemaking even more critical.[8]

ITS America commends the Commission for its leadership in adopting the NPRM and fully supports the finalization of the proposed ITS spectrum allocation and the initiation of further proceedings in this docket to establish service and licensing rules to support that

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3 *NPRM* at ¶ 1.

4 *Id.*

5 *See generally* ITS America Comment.

6 *Id.* at 3-9. *See* Pub L. No. 102-240, 105 Stat. 1916 (1991) ("ISTEA"). *See also NPRM* at ¶ 2 ("The [ISTEA] established a national program within the U.S. Department of Transportation . . . to develop 'Intelligent Transportation Systems' or 'ITS' (previously referred to as 'Intelligent Vehicle-Highway Systems') within the United States.").

7 Pub. L. No. 105-178, 112 Stat. 107 (1998) ("TEA-21"). *See* ITS America Comment at 3-9 & Appendix A (Appendix A provides a summary of TEA-21).

8 ITS America Comment at 10-14.

allocation. ITS America believes that this effort will spur both the continued development of DSRC-based products and the industry standardization activities necessary to achieve the national interoperability required by TEA-21. ITS America strongly encourages the Commission to complete the spectrum allocation promptly to spur the development of industry standards, accelerate the deployment of DSRC products consistent with TEA-21, promote the development of robust and competitive markets, and facilitate U.S. competitiveness in the emerging ITS global markets.[9]

I. THE RECORD SHOWS BROAD SUPPORT FOR THE COMMISSION'S PROPOSAL TO ALLOCATE 75 MHz of SPECTRUM IN THE 5.850-5.925 GHz BAND ON A CO-PRIMARY BASIS FOR ITS SERVICES.

The Commission received 14 comments in response to the NPRM.[10] All parties recognize the public benefits that would accrue from the anticipated DSRC operations and, therefore, generally support an allocation of spectrum for use of DSRC-based ITS services. Moreover, the majority of the comments specifically support the Commission's proposal to allocate 75 MHz of spectrum in the 5.850-5.925 GHz band for DSRC-based ITS services.[11]

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9 As the Commission noted in the NPRM, one of ISTEA's goals for ITS is "enhancement of United States competitiveness and productivity by improving the free flow of people and commerce and by establishing a significant United States presence in this emerging field of technology." *NPRM* at ¶ 2 n.1.

10 In addition to ITS America, the following parties submitted timely-filed comments: American Radio Relay League ("ARRL"); Amtech Systems Division of Intermec Technologies Corp. ("Amtech"); Association of Public-Safety Communications Officials – International, Inc. ("APCO"); International Municipal Signal Association ("IMSA"); Mark IV Industries, Ltd. ("Mark IV"); Motorola; PanAmSat Corp.; ReSound Corp.; U.S. Department of Transportation ("DoT"); Nickolaus E. Leggett; and Samuel F. Wood. Two additional comments apparently were late-filed. A copy of comments submitted by David M. Shaw, a member of an amateur radio group, was received by the FCC mailroom on September 15, 1998. A copy of comments filed by the International Bridge, Tunnel & Turnpike Association (IBTTA) was filed with the Office of Secretary on September 22, 1998.

11 *See generally* ITS America Comment; APCO Comment; Amtech Comment; DoT Comment; IMSA Comment; Mark IV Comment; PanAmSat Comment; IBTTA Comment.

A. There is Broad Recognition of the Benefits of ITS.

The majority of comments in this proceeding support the allocation of spectrum for ITS services, which is expected to increase the safety and efficiency of the Nation's transportation infrastructure. The Association of Public-Safety Communications Officials-International, Inc. (APCO), one of the nation's oldest and largest public safety communications organization, recognizes the "significant public safety potential of ITS."[12] APCO points out that "DSRC, combined with other ITS technology, will allow traffic to be diverted to facilitate more rapid emergency vehicle response. Other potential ITS applications include incident detection and management systems to identify road hazards, automated roadside inspections, and collision avoidance systems."[13] The International Municipal Signal Association ("IMSA") similarly notes "that systems aimed at improving road safety and averting traffic accidents, such as intersection collision warning systems and the Automated Highway System, will provide immeasurable benefits that cannot be attained through existing systems and within the current allocation framework."[14] Further, IMSA states that, "[i]n light of the astronomical levels of congestion that now exist on many of our nation's roadways, the importance of ITS applications cannot be overstated."[15]

The U.S. Department of Transportation ("DoT") recognizes that DSRC services are an important component of the National Intelligent Transportation Systems program, which Congress has repeatedly identified as a primary means of improving the nation's transportation

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12 *See* APCO Comment at 2.

13 *Id.*

14 *See* IMSA Comment at 3.

15 *Id.*

infrastructure and enhancing safety, efficiency, and the environment.[16] In its comments, DoT states:

> The National ITS Architecture identifies DSRC as the most appropriate medium, in whole or in part, for eleven of the thirty ITS user services. It is therefore a critical enabling technology for the realization of current, emerging, and future ITS applications. Adoption of the Commission's proposal will fully meet the needs of the ITS program with respect to DSRC by ensuring that key ITS services will be able to expand to meet anticipated growth, and will remain free of interference in circumstances involving public safety [17]

Because of the many public benefits that will be realized from the deployment of DSRC-based ITS services, ITS America urges the Commission, consistent with its proposal in the NPRM, to allocate 75 MHz of spectrum between 5.850 and 5.925 GHz band for ITS services. Furthermore, ITS America also asks the Commission to act expeditiously in finalizing the proposed spectrum allocation and instituting further proceedings to define licensing and service rules before January 1, 2000. As ITS America pointed out in its comments, expeditious adoption of rules for the allocation of spectrum for use by DSRC is particularly critical in order for the Secretary of Transportation to fulfill its statutory obligation under TEA-21,[18] and to ensure that the United States is able to assume a leadership role in the deployment of ITS technology and in the development of international standards.

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16 *See* DoT Comment at 1

17 *Id.* at 2-3.

18 *See* ITS America Comment at 8. Section 5206 of TEA-21 requires the Secretary of Transportation to develop, implement, and maintain a national architecture to guide nationwide deployment of intelligent transportation systems and to set standards and protocols to promote the widespread use of these technologies and to ensure interoperability. ITS America believes that DSRC will be deemed by the Secretary as one of the standards that is critical to ensuring national interoperability and the development of other standards.

B. There is Broad Support for Allocation of the 5.850-5.925 GHz band for DSRC Applications.

The comments show broad support for use of the 5.850-5.925 GHz band for DSRC applications.[19] DoT notes that the proposal will support current and future use of ITS services and allow the flexibility necessary to operate with the users currently in the band.[20] ITS America concurs with DoT's view that "only an allocation that is large enough to encompass the planned and envisioned range of services will ensure the interest and investment necessary to bring about the enormous potential benefits."[21] Further, we agree with DoT's observation: "The Department recognizes that technology is not static and that future DSRC devices may well require less bandwidth [than] the current generation of equipment, but to allocate spectrum on the basis of projections, however desirable or hoped-for, is to risk limiting the implementation of DSRC services and thus the public benefits noted by the FCC."[22]

ITS America believes that the record on its Petition For Rule Making and on the NPRM fully supports the proposed allocation. While the spectrum in Europe and Asia currently used for some DSRC applications does not overlap the 5.850-5.925 GHZ band, as the Commission has determined, it is close enough to enable equipment manufacturers to benefit from global economies of scale. Further, such an allocation would likely facilitate global research, technological innovations, and industry standards-setting activities that would result in the mass production of equipment to take advantage of economies of scale.[23] As the

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19 *See* Mark IV Comment at 2; Amtech Comment at 1; ITS America Comment at iii, 9-10; DoT Comment at 5; IMSA Comment at 1; IBTTA at 1; APCO Comment at 2; PanAmSat Comment at 1-2.

20 DoT Comment at 3.

21 *Id.*

22 *See* DoT Comment at 3.

23 *NPRM* at ¶ 13.

Commission and parties in this proceeding observe, the 5.9 GHz range offers adequate spectral capacity.

C. The Record Justifies Allocation of 75 MHz for DSRC Applications in the 5.9 GHz Band.

Most commenters support the Commission's proposal to allocate 75 MHz for DSRC applications in the 5.9 GHz band.[24] ARRL, however, contends that the Commission has not adequately evaluated the need for the full 75 MHz band.[25] Motorola urges the allocation of 50 MHz between 5.875 MHz and 5.925 MHz (with the 5.85 – 5.875 MHz band reserved for unlicensed Part 15 uses). As shown in ITS America's and other parties comments, however, the allocation of the full 75 MHz will accommodate the robust deployment of ITS services on a nationwide interoperable basis that has been established as a national priority by Congress. Moreover, the allocation of 75 MHz will ensure that the U.S. ITS markets remain as the world's leaders and continue to generate significant research and development in the deployment of new or emerging DSRC-based user services. As DoT notes, "it [is] important to propose an allocation sufficiently large to accommodate existing and emerging services plus future development of the full panoply of DSRC applications which have great potential to improve highway safety and efficiency, even in those areas where Fixed Satellite Service ("FSS") operations or high powered Government radar systems may reduce availability of some channels."[26] Additionally, a 75 megahertz allocation should enable avoidance of occupied

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[24] *See* Mark IV Comment at 2; Amtech Comment at 1; ITS America Comment at iii; DoT Comment at 3; IMSA Comment at 6; IBTTA at 1; APCO Comment at 2; PanAmSat Comment at 1-2.

[25] *See* ARRL Comment at i, 4-5.

[26] *NPRM* at ¶ 14.

frequencies in areas where incumbent use is heavy and should be sufficient to meet the spectrum demands of DSRC operations.[27]

II. THE MAJORITY OF COMMENTERS AGREE THAT DSRC SYSTEMS ARE COMPATIBLE WITH EXISTING USES OF THE SPECTRUM AND CAN OPERATE IN THE 5.850 TO 5.925 GHz BAND WITH MINIMAL INTERFERENCE.

Most commenters agree with the Commission's conclusion that DSRC-based ITS services can share spectrum with incumbent operations in this frequency range.[28] The 5.850-5.925 GHz band is allocated internationally on a primary basis for Fixed Services, Fixed Satellite Service ("FSS") Earth-to-space links, and Mobile Services.[29] Additionally, this band is allocated on a secondary basis to the Amateur Radio Service and the Radiolocation Service.[30] Domestically, the entire band is currently allocated on a co-primary basis for the Government's Radiolocation Service (*i.e.*, for use by high-powered military radar systems) and for non-Government FSS uplink operations.[31] Further, unlicensed Part 15 devices are also permitted to operate in the 5.850-5.875 GHz segment.[32] Finally, the Amateur Radio Service has a secondary domestic allocation in the entire band.[33]

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27 *Id.*

28 *NPRM* at ¶ 23. *See generally* comments submitted by Amtech, APCO, IMSA, Mark IV, ITS America, PanAmSat, DoT, and IBTTA.

29 *NPRM* at ¶ 5.

30 *Id.*

31 *Id.*

32 *Id.*

33 *Id.*

ITS America agrees with other parties that DSRC-based services can successfully share the 5.850-5.925 GHz band on a co-primary basis with existing Government and non-Government users.[34] With respect to FSS operations, PanAmSat states, "it does not appear that, by itself, the proposed allocation for ITS systems operating within technical parameters proposed in the NPRM, will cause harmful interference to FSS operations at 5.8 GHz."[35] DoT assures the Commission that DSRC applications and incumbent users, such as INTELSAT and the Department of Defense, can share the relevant band without interfering with each other.[36]

ReSound Corporation, a manufacturer of unlicensed low power auditory assistance devices used by people with hearing disabilities, opposes a DSRC allocation in the 5.850-5.875 GHz segment, claiming that such operations could interfere with hearing assistance devices it plans to manufacture for operation in this segment.[37] This device is still under development, and these devices, according to ReSound, "do not presently operate using the 5850-5875 MHz band."[38] Nonetheless, ReSound asserts that DSRC systems could create interference to co-frequency low power hearing assistance devices in a mobile environment.[39]

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34 *See, e.g.*, DoT Comment at 5-7; PanAmSat Comment at 1-2.

35 PanAmSat Comment at 1. *See NPRM* at ¶ 20 ("Given the limited number of FSS earth stations currently authorized, we believe that spectrum sharing between FSS and DSRC operations may be possible. . . . "[G]iven the much higher power of FSS operations and the relatively low power of DSRC operations, individual DSRC operations should not cause harmful interference to incumbent FSS satellite operations.").

36 "The existence of incumbent users naturally raises the question of interference. DoT has been working with the incumbents and their representatives – particularly the U.S. Department of Defense ("DOD") and INTELSAT – to ensure that appropriate spectrum sharing is technically feasible. Substantive analysis demonstrates that it is; but reducing the results to a specific regulatory provision has been more difficult. Based on the technical analysis, however, the Department submits that DSRC applications and incumbent users can share the relevant band without interfering with each other." DoT Comment at 5.

37 *See* ReSound Comment at 2-3.

38 *Id.* at 3.

39 *Id.* at 7.

ReSound contends that its concerns could be addressed by excluding DSRC applications from the 5.850-5.875 GHz segment.[40] Similarly, Motorola contends that the proposed allocation for DSRC services must also accommodate low power hearing devices.[41] It asserts that because low-power hearing devices, with a transmit power of 1 mW cannot coexist with the 30 W EIRP limits proposed by the Commission for DSRC devices, Motorola recommends that the Commission reduce the proposed allocation of spectrum for DSRC-based applications.[42] It further proposes that the band from 5.875-5.925 GHz be allocated for DSRC, and that the band from 5.850-5.875 GHz "retain the current restrictions."[43] Motorola surmises that DSRC devices can be supported by a lower allocation of spectrum.[44]

Although the provision of hearing assistance devices to those with disabilities is a valuable service in the public interest, they are, however, unlicensed devices and are not entitled to protection by the Commission's Rules.[45] While ReSound and Motorola have not yet manufactured devices that use this band, neither address the fact that interference may already exist to their proposed unlicensed device from existing incumbent users of the band. Nor do they address the potential that future uses of the band may disrupt the operations of their unlicensed device after it is commercially deployed – a result that may be far more severe than simply requiring today that ReSound seek and support a co-primary allocation in this band or another band. As the Commission stated, "[a]t present, any mobile Part 15 hearing assistance device

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40 *NPRM* at ¶ 18.

41 *See* Motorola Comment at 1-3.

42 *Id.* at 3.

43 *Id.*

44 *Id.* at 4.

45 *NPRM* at ¶ 21.

operations in the 5.850-5.875 GHz band could encounter interference problems from various higher powered incumbent operations such as Government radar operations, FSS and ISM operations."[46]

ITS America has had discussions with ReSound concerning the potential sharing of the 5.85 to 5.875 GHz band and is still exploring possible sharing protocols. ITS America, of course, recognizes the public benefits of products that promote auditory assistance for the hearing disabled. ITS America believes that the Commission must weigh the substantial benefits to be gained by a robust deployment of DSRC services in the U.S. against the possible need for the relocation of the ReSound device (or the limitation of operations in the 5.850 to 5.875 GHz band segment) to another band segment to avoid interference not only with DSRC users, but with other users as well.

The Amateur Radio Relay League (ARRL) and amateur radio operators Nickolaus E. Leggett, Samuel F. Wood, and David M Shaw oppose use of the 5.850-5.925 GHz band for use by DSRC services, claiming such use could interfere with incumbent amateur radio operations.[47] ARRL acknowledges, however, that "it is not clear that there is a compatibility problem at 5 GHz between amateur stations and DSRC functions."[48] Despite this, ARRL urges the Commission to place DSRC allocation entirely above 40 GHz.[49]

The Amateur Radio Service, as a secondary service in the band, is not entitled to any interference protection from DSRC systems. The Commission has stated that amateur operations would not be permitted to cause harmful interference to primary licensed operations

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46 *Id.*

47 *See* ARRL Comment at 6.

48 *Id.*

in this frequency range. The amateur radio operators provide no explanation as to why it could not, if necessary, be able to operate around DSRC devices, which will only have access to 75 megahertz in this portion of the 5 GHz spectrum.[50]

The Commission has already found that the secondary amateur radio allocation which overlaps the band requested by ITS America "appears to be lightly used."[51] Indeed, ARRL's website appears to indicate that there is no planned use of the 5.850-5.925 GHz band by amateur operators.[52] Moreover, amateur operators already have access to 275 MHz in the 5.650-5.925 GHz band. Furthermore, as the Commission stated: "We anticipate that any interference problems that may develop between amateur stations and DSRC operations could be resolved by changing the frequency of the amateur operation in order to protect primary status operations or by other engineering techniques, such as power reduction or directional antennas."[53] ARRL has not made any showing that this is unworkable or infeasible. ITS America recognizes and appreciates ARRL's interest in undertaking coordination efforts with ITS America.[54] ITS America looks forward to reopening discussions with ARRL to address further their concerns.

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49 *See also* Leggett Comment at 1.

50 The Commission made the same query with respect to amateur licensees' claim of interference with unlicensed NII devices. *See* Amendment of the Commission's Rules to Provide for Operation of Unlicensed NII Devices in the 5 GHz Frequency Range, 12 FCC 1576, 1610 (1997) ("Further, with regard to spectrum sharing with the amateur service, we note that the amateur service has access to 275 megahertz of spectrum in the 5.65-5.925 GHz band. We believe amateur licensees will, if necessary, be able to operate around U-NII devices, which only have access to 100 megahertz in this portion of the 5 GHz spectrum.").

51 *NPRM* at ¶ 22.

52 ARRL's website provides an amateur "band plan" which appears to indicate the use of the frequency band 5.650 to 5.925 GHs only at 5760.3 to 5760.4 GHz for propagation beacons. *See* "www.arrl.org/filed/regulations/bandplan.html #5650."

53 *NPRM* at ¶ 22.

54 ARRL Comment at 12. ARRL alleges that "there have been promised by ITS America representatives compatibility studies which have not yet occurred. These should be mandated by the Commission prior to

III. CONCLUSION

For the foregoing reasons, and as further detailed in its Petition and comments in response to the NPRM, ITS America urges that the Commission expeditiously finalize the proposed spectrum allocation.

Respectfully submitted,

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any decision in this proceeding." *Id.* at 15. ITS America believes there to have been a misunderstanding or miscommunication on this point. ITS America shares ARRL's interest in continuing discussions concerning spectrum sharing.

CERTIFICATE OF SERVICE

I, Benigno E. Bartolome, Jr., hereby certify that a copy of the foregoing "Reply Comments of ITS America" was served this 13th day of October 1998 by hand delivery upon the following:

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